

MULTIPLE POLARIZATION COMBINER-SPLITTER-ISOLATOR
AND METHOD OF MANUFACTURING THE SAME

ABSTRACT OF THE DISCLOSURE

A multiple-port optical device combines two polarization combiner-splitters into one package. Two single mode optical fibers are enclosed in a first ferrule of the package and are optically coupled to four polarization maintaining fibers enclosed in a second ferrule of the package. The optical fibers are precisely positioned using improved fiber ferrules comprising various capillary designs. A prism is mounted between the single mode fibers and the polarization maintaining fibers. The fibers are screened for geometric characteristics which aide in precisely positioning the fiber cores. The ferrules, capillaries, fibers, and adhesives are combined to reduce adverse thermal effects over a broad range of environmental conditions. The precise positioning and geometry of the optical fibers aids in optically aligning the elements of both polarization combiner-splitters in the one package. The invention is applicable to related devices such as multiple isolators, combiner-isolators, splitter-isolators, and the like.

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